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EXAMINER	
HOFFMAN, MARCIA	
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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/596,752
Filing Date: December 08, 2008
Appellant(s): IMHOF, MARTIN

Bryan J. Jaketic
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed June 10, 2011 appealing from the Office action mailed October 22, 2010.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

Claims 5-35 are pending. Claims 5-10 and 12-35 stand rejected. Claim 11 is withdrawn from consideration.

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN

REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

WITHDRAWN REJECTIONS

The following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner. Rejection of claims 5, 12-20 and 26-35 under 35 U.S.C. 112, second paragraph, are withdrawn. Particularly, the rejection regarding the clarity of the recitation of "a radius of curvature" with respect to claims 5, 19 and 34 is withdrawn. Additionally, the rejection regarding the clarity of claim 12 regarding the clarity of the recitation directed to the configuration allowing free rotation and tilting of the insert in the socket shell is withdrawn.

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

2002/0068980	SERBOUSEK ET AL	6-2002
4,997,447	SHELLEY	3-1991

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 5-10, 12-29 and 34-35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which is regarded as the invention.

Claims 6 and 21 recite "an infinite radius of curvature", wherein it is unclear if this is the same as "a radius of curvature" recited claims 5 (line 14-15) and 19 (lines 12-13) upon which these claims respectively depend.

Claims 5-10, 12, 14-17, and 19-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Serbousek et al. U.S publication no. 2002/0068980.

Regarding claims 5 and 19-20, Serbousek et al. disclose a joint socket (10) for a hip endoprosthesis (i.e. acetabular cup assembly), comprising: a socket shell (12) configured to be implanted in the pelvic bone of a patient (paragraph [0029], lines 3-4), the socket shell having an inner surface (20) that defines an accommodating space (24) extending about an axis of rotation (figure 1); and a socket insert (14) configured so as to be capable of providing a bearing for a joint head of a prosthesis stem via a bearing surface (34), a spherical outer surface of the socket insert configured to be disposed or inserted in the accommodating space (24) of the socket shell (12) (figures 1 and 3) and contact the inner surface of the socket shell along a line of contact that is concentric with the axis of rotation of the accommodating space of the socket shell (see figures 2-4, see paragraph [0034], lines 7-11, paragraph [0035], lines 18-21, and paragraph [0040], lines 7-10, wherein it is within the scope of the disclosure to have a spherical outer surface of an insert in self-locking contact with a straight inner surface of an acetabular shell as the line of contact). The line of contact being surrounded by and intersecting the spherical outer surface of the socket insert, the socket insert coupleable in a self-locking manner within the accommodating space

along the line of contact (figures 1-4; paragraphs [0035] and [0040]), wherein the inner surface (at 30) of the socket shell (12) tapers toward a pole of the shell (figure 4) in a region on either side of the line of contact in such a manner that a radius of curvature of the taper of the inner surface of the socket shell in the region of the line of contact is greater than the spherical radius of the outer surface of the socket insert at the line of contact when the shell and insert are in contact with each other (see paragraphs [0034]-[0035]).

As is best understood, regarding claims 6 and 21, Serbousek et al. disclose the inner surface has a conical shape (paragraph [0034], lines 7-9) and defines an infinite radius of curvature in the region of the line of contact (figures 2-4).

Regarding claims 7 and 22, Serbousek et al. disclose a cone angle of the conically shaped inner surface is a self-locking angle (paragraph [0035], lines 5-11) corresponding to a material pairing of the socket shell and the socket insert (paragraph [0033], where it is understood that material pairing is necessary in combining materials and interlocking components and would thus also be necessary in affixing shell and liner).

Regarding claims 8-10 and 23-25, Serbousek et al. disclose the cone angle of the conical inner surface is between about 4° and 10°, or particularly about 4.5° degrees, or particularly about 9.5° (paragraph [0035]).

Regarding claim 12, Serbousek et al. disclose the joint socket and the joint insert are configured to allow free rotation and tilting of the insert in the socket shell (paragraph [0040], lines 7-10) -- when inserting, removing or positioning, i.e. including a point in time wherein the shell and liner are in contact but not fully locked into place (figures 2-4).

Regarding claim 14, Serbousek et al. disclose the socket shell is configured to be fixed in a bone by one or more screws (figures 7-9, where it is understood that the socket shell is configured such that it is capable of being fixed in a bone by one or more screws –paragraphs [0041]-[0042]--, wherein the use of bone screws to secure a socket shell is well-known in the art).

Regarding claim 15, Serbousek et al. disclose the accommodating space comprises a generally flat base (22) (figure 4; paragraph [0029], lines 17-20).

Regarding claim 16, Serbousek et al. disclose the socket insert is a metallic socket insert (paragraph [0031], lines 13-14).

Regarding claim 17, Serbousek et al. disclose the socket insert is a ceramic socket insert (paragraph [0031], lines 13-15).

Regarding claims 30-31 and 34-35, Serbousek et al. disclose a joint socket (10) for a hip endoprosthesis (i.e. acetabular cup assembly), comprising: a socket shell (12) having an inner surface (20) that defines an accommodating space (24) extending about an axis of rotation (figure 1), at least a portion of the accommodating space (via 30) is conical or in the form of a straight circular cone (figure 4) having a tapered portion that extends about the axis of rotation (paragraph [0034]), the straight circular cone having a cone angle between about 4 degrees and 10 degrees (paragraph [0035]); and a socket insert (14) having an outer surface (including 44), the outer surface is spherically shaped with a radius of curvature (paragraph [0034], particularly lines 7-11, and paragraph [0035], particularly lines 18-21) at least in a region in which the outer surface of the socket insert comes into contact with the inner surface of the straight circular cone in use (figure 4 in view of above citations), wherein the socket shell and insert are coupleable in

a self-locking manner along a contact between the spherically shaped region and the circular cone portion (paragraphs [0034]-[0035] and [0040], lines 7-10), that is, the socket insert is configured to contact the socket shell on the tapered portion along a line of contact concentric with the axis of rotation of the tapered portion when the socket insert is inserted into the accommodating space of the socket shell; wherein a radius of curvature of the taper of the tapered portion surrounding the line of contact is greater than the radius of curvature of the spherically shaped region of the socket insert (paragraphs [0034]-[0035]).

Regarding claims 26-27 and 32, Serbousek et al. disclose the socket insert is capable of contacting the socket shell solely along the concentric line of contact (paragraph [0029], lines 21-24, and paragraph [0030], lines 1-4).

Regarding claims 28-29 and 33, Serbousek et al. disclose the socket insert (14) is monolithic (figure 1).

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Serbousek et al. in view of Shelley U.S. patent no. 4,997,447.

Regarding claim 13, Serbousek et al. discloses the present invention including at least a portion of an outer surface of the socket shell comprises a mechanism to further facilitate fixation of the shell (paragraph [0042], lines 10-13). However, Serbousek et al. are silent regarding the mechanism to further facilitate fixation of the shell comprises a threaded portion over at least a portion of an outer surface of the socket shell. It is well-known in the art to use a threaded portion over at least a portion of an outer surface of the socket shell to further facilitate fixation of the shell. Shelley teaches a threaded portion over at least a portion of an outer surface of the socket shell (figure 2). It would have been obvious to one of ordinary skill in the art at the

time of the invention to use the outer surface socket shell threaded portion, as taught by Shelley, in the invention disclosed by Serbousek et al. in order to further facilitate fixation of the shell in the acetabulum.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Serbousek et al..

Regarding claim 18, Serbousek et al. discloses the present invention, including the line of contact is spaced at varying axial depth from the mouth of the opening of the accommodating space (paragraph [0029], lines 23-24). However, Serbousek et al. is silent regarding the line of contact is spaced between about 5mm and 15mm from an opening of the accommodating space. It would have been obvious to one of ordinary skill in the art at the time of the invention to space the line of contact between about 5mm and 15mm from an opening of the accommodating space, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. It is further noted by the Examiner that it would have been obvious to one of ordinary skill in the art at the time of the invention to space the line of contact between about 5mm and 15mm from an opening of the accommodating space, since the originally filed specification has not disclosed that spacing the line of contact between 5mm and 15mm solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with a line of contact that is spaced at varying axial depths from the mouth of the opening of the accommodating space.

Claims 5-25 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 9-28 of copending Application No. 12/296796. Although the conflicting claims are not identical, they are not patentably distinct

from each other because both the present application and copending application are drawn to a joint socket for a hip joint endoprosthesis, comprising: a socket shell configured for implantation in a bone and comprising a receiving space comprising an inner face; and a socket insert coupleable to the socket shell and configured to accommodate a joint head of a hip prosthesis stem therein, the socket insert comprising a spherical portion comprising a spherical outer face, the spherical portion configured to be received by the receiving space so that the spherical outer face and inner face contact each other concentrically with a rotational axis of the socket shell, the radius of curvature of the inner face being greater than the radius of curvature of the spherical portion in a region of concentric contact, such that the spherical portion self-lockingly clamps in the receiving space.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

(10) Response to Argument

In Section (A), Appellant addresses the 35 U.S.C. 112, second paragraph, rejection of claims 6-10 and 21-25. The Examiner's position in the rejection is that it is unclear if "a radius of curvature" recited in dependent claims 6 and 21 are the same "a radius of curvature" recited in claims 5 (lines 14-15) and 19 (lines 12-13), upon which the dependent claims depend. The Appellant argues that such recitations refer to the same feature. The Examiner maintains the rejection and contends that in order to particularly point out and distinctly claim the invention, Appellant should properly utilize antecedent basis within the claims for clarity.

In Section (B)(1)-(B)(4), Appellant addresses the 35 U.S.C. 102(b) anticipation rejections of claims 5-10, 12, 14-17 and 19-35. Particularly, Appellant argues that the hip

implant of Serbousek et al. fails to disclose the male and female self-locking taper combination between components 12 and 14 along a line of contact such that the inner wall (female taper) of socket element 12 comprises a greater radius of curvature than the outer wall (male taper) of socket insert element 14. The Examiner maintains that Serbousek et al. clearly anticipates these features at least in paragraphs [0034]-[0035] (which are reproduced below with emphasis added).

> [0034] This subassembly **60** is then inserted into cavity **24** of shell **12** to form assembled acetabular cup assembly **10**. See **FIG. 3**. Once liner **14** is pressed into cavity **24**, female and male tapers **30, 44** cooperate to hold subassembly **60** in place. Male taper **44** of liner **14** engages female taper **30** of shell **12** and forms a metal-to-metal locking mechanical connection therebetween. Tapers **30, 44** may be a straight taper, as in FIGS. **2-7**, or they may be as a curve of a conic section—circle, ellipse, parabola, hyperbola or the like. If taper **44** of outside surface **32** of liner **14** is straight, taper **30** of side wall **26** of shell **12** is also straight.
>
> [0035] Referring now to **FIG. 4**, tapers **30, 44** are machine tapers that provide a connection that ensures and maintains accurate alignment between shell **12** and liner **14** and permits shell **12** and liner **14** to be separated for reconditioning or for substitution of other parts. Tapers **30, 44** may be a self-holding taper (i.e. self-locking) or a self-releasing taper. Throughout the specification and claims the terms "self-holding" and "self-locking" are defined as male and female tapers that when in engagement with one another, tend to stay in place owing to the taper angle; no other means of holding is required. That is, in the case of straight, symmetric tapers, the included angle between diametrically opposite points on male taper **44** will be greater than zero degrees and less than or equal to about seventeen degrees. As shown in **FIG. 4**, which illustrates symmetrical tapers **30, 44**, an angle **48** between the opposite points on male taper **44** is greater than zero degrees and less than or equal to about seven degrees. A curved locking taper is achieved when the acute angles between tangents to the curve over much of its length and perpendicular to rim **40** are greater than zero degrees and do not exceed about seven degrees. Removal of the male taper from the female taper is accomplished by starting the removal with a drift key or some other positive mechanism.

First, Serbousek et al. clearly disclose the use of a curved self-locking taper (paragraphs [0034]-[0035]). Secondly, Serbousek et al. clearly disclose the concurrent use of different radii of curvature within the scope of the invention, for example, in paragraph [0035] by stating "A curved locking taper is achieved when *the acute angles* between **tangents** to the curve *over much*

of its length and perpendicular to rim 40 are greater than zero degrees and do not exceed about seven degrees" (paragraph [0035], lines 18-21, emphasis added). Because Serbousek et al. did not illustrate the disclosed curved locking taper, the following drawings have been produced to bring to light the intended configuration of the disclosed curved taper which exists between *tangents* to a curve. Figures A-C below are intended to be blown up perspectives of possible configurations of a section of the taper elements 30 (inner surface of socket 12) and 44 (outer surface of insert 14), similar to the view provided in figure 4 of Serbousek, wherein the top of the figure is directed towards the inner accommodating space of the implant.

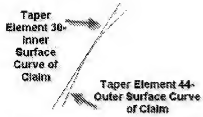

Figure A- Greater Radii of Curvature of Female Taper, i.e. greater radii of curvature of inner surface of socket shell as claimed, achieves acute angles and tangent to curve as disclosed by Serbousek et al.

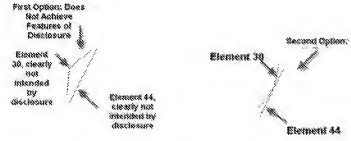

Figure B- Possible configurations for forming inner surface of socket shell with a greater radii of curvature than the outer surface of the socket insert. First Option: fails to achieve acute angles at tangent to curved, as disclosed. Second Option: fails to preclude anticipation rejection.

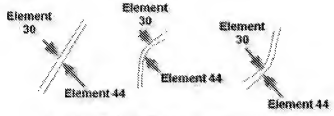

Figure C- Possible Configurations for both male and female taper portions having the same radius of curvature. This is the stand point of the Appellant in the arguments with respect to the disclosure of curved taper Serbousek et al. -- Clearly fails to meet requirements of disclosure of Serbousek et al.

By observation of Figure C above, clearly the Appellant's interpretation of the prior art is incorrect, because it fails to meet the disclosure of paragraph [0035], lines 18-21. Thirdly, paragraph [0034] of Serbousek et al. clearly discloses that either of taper elements 30 and 44 may be "a straight taper... or they may be as a curve of a conic section- circle, ellipse, parabola, hyperbola or the like" (paragraph [0034], lines 7-11). Thus, Serbousek et al. expressly disclose the following: (a) the use of a curved locking taper (paragraphs [0034]-[0035]); (b) a curved locking taper is achieved when the acute angles between tangents to the curve over much of its length ... are greater than zero degrees and do not exceed about seven degrees (i.e. are not parallel or with the same radii of curvature as alleged by Appellant, note Figure C above); and (c) the lesser radii of curvature may be either element 30 or 44 (note Figure A and Figure B, Option 2), i.e. expressly disclosed in paragraph [0034], lines 7-11. Because Serbousek et al., when interpreted as a whole, expressly discloses the scenario wherein the inner surface female taper element 30 of the socket element 12 has a greater radii of curvature than the outer surface male taper element 44 of the socket insert element 14, Serbousek et al. anticipates the claimed invention.

The following are the related appeals, interferences, and judicial proceedings known to the examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal: U.S. Patent Application No. 12/296,796 ("the '796 application") is a commonly owned patent application that has common subject matter. An appeal brief has been filed in the '796 application concurrently with this brief.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/MARCIA HOFFMAN/

Examiner, Art Unit 3774

Conferees:

/DAVID ISABELLA/

Supervisory Patent Examiner, Art Unit 3774

/THOMAS J SWEET/

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